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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/509,571	06/14/2000	MITSUHIKO FUKABORI	425-763PCT	7631

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EXAMINER
LEUNG, JENNIFER A

ART UNIT	PAPER NUMBER
1764	

DATE MAILED: 04/21/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/509,571	FUKABORI ET AL.	
	Examiner	Art Unit	
	Jennifer A. Leung	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2 and 4* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2 and 4* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 12, 2004 has been entered.

Response to Amendment

2. Applicant's amendment submitted on December 23, 2003 has been received and carefully considered. Claim 3 has been cancelled. Claims 1, 2 and 4 remain active.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The phrase, "the processing furnace" (lines 7, 9 and 10) lacks proper positive antecedent basis. Note that "an inflator processing apparatus" is set forth in line 2.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1, 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakasato et al. (EP 0 677 336) in view of Allerton, III et al. (U.S. 5,294,244) and Mullarkey (U.S. 3,793,101).

Regarding claim 1, Nakasato et al. (page 3, lines 32-51) discloses an inflator processing apparatus comprising a processing furnace (i.e. heating furnace; page 3, lines 36-37), wherein a partition wall (i.e. baffles; page 3, lines 49-51) is provided between an inner surface of a wall of the processing furnace and the inflator. The baffles inherently cover and protect a portion of the inner surface of the wall, by virtue of the baffles being a solid barrier located between the inflator and the inner wall surface. Nakasato et al. further discloses feeding the inflators continuously and individually into the processing furnace, thereby activating the inflators one at a time in the sequence in which they are fed, to prevent massive generation of gases and to allow for greater control over furnace operation, i.e. temperature, pressure and residence times (page 3, lines 36-44). Thus, the apparatus inherently comprises a means for charging the furnace with inflators, and the apparatus is inherently capable judging the timing of charge of the inflators, although the specific structure of the charging module is not described. A conventionally known example of a charging module is illustrated by Mullarkey (column 5, lines 23-65; claims 1-13), who teaches an apparatus for processing unused ammunition by heating, wherein the charge of ammunition via conveyer **2** is controlled (i.e. started or stopped) by comparing the quantity of charged

ammunition to the peak points of furnace pressure (i.e. acoustic shock sensed by explosion detector **66**). Accordingly, the charging module provides an additional safety mechanism by preventing ammunition that has not exploded from leaving the furnace. The ammunition, like the inflator, emits combustion gas upon deactivation via heating to an ignition or operating temperature, and would thus represent analogous art.

In view of the newly added limitations, Nakasato et al. is silent as to the inner surface of the furnace wall comprising a ceramic material and the partition wall comprising a metal such as a heat-resistant steel. In any event, it would have been obvious for one of ordinary skill in the art at the time the invention was made to select an appropriate material, such as ceramic or steel, for both the inner surface and the partition wall, respectively, in the apparatus of Nakasato et al., because it is well known in the art to use such materials in the construction of heat treating apparatus, due to the known high heat resistivity and non-corrosive nature of said materials. Allerton, III. et al. (FIG. 3; column 3, lines 33-64; column 4, lines 21-28) evidences the conventionality of using such materials in a similar inflator processing apparatus, wherein a furnace **108** which is charged with an inflator **10** comprises a steel plate deflector **130** anchored to an interior surface **146** of the furnace housing **122**. The housing, too, is constructed of steel and comprises insulating blocks lined with a silica fire brick (i.e., ceramic). Other suitable lining materials taught by Allerton include refractory coatings of alumina and silica (i.e., ceramic).

Regarding claim 2, Nakasato et al. discloses heating may be carried out in the furnace by contacting the inflator with hot gases or a flame (page 8, claim 6). Although Nakasato et al. do not specifically cite an incinerator provided with a burner and an air supplier or/and an exhaust gas circulator for generating said hot gases or flame, it would have been obvious for one of

ordinary skill in the art at the time the invention was made to select an incinerator comprising a burner and an air supplier or/and an exhaust gas circulator for the heating means in the modified apparatus of Nakasato et al., since such apparatus is well known in the art as a furnace heating means. To further evidence conventionality, Allerton, III et al. teaches furnace **108** comprising an incinerator (i.e. heating unit **118**) that operates on a prescribed mixture of natural gas and compressed air, thereby functioning as a natural gas burner (column 4, lines 40-59).

Regarding claim 4, Nakasato et al. discloses a method of processing an inflator using the "inflator processing apparatus" as disclosed in claim 1 above, wherein the method comprises the steps of heating the inflator to a temperature not lower than an operating temperature of the chemical (i.e., a temperature of about 150 °C - 450 °C to ignite the ingredients of the inflator to cause complete combustion; page 3, lines 32-35), and timing the charge of inflators into the inflator processing apparatus such that, "… inflators are continuously and individually fed to the furnace and are activated one at a time in the sequence in which they are fed," in order to prevent massive generation of gas (page 3, lines 40-43). Nakasato et al. further discloses such continuous mode of operation allows "control over furnace operation," such as pressure and residence time (page 3, lines 43-44). Although Nakasato et al. does not explicitly disclose comparing the number of charged inflators with the number of peak points of furnace pressure, it would have been obvious for one of ordinary skill in the art at the time the invention was made to provide such step to the method of Nakasato et al., since the step is intrinsic to the method of Nakasato, as evidenced by the disclosed feeding and actuation of inflators "one at a time in the sequence in which they are fed." Furthermore, the method of controlling the charge of an explosive reactant into a heating zone according to such comparison is conventionally known in

the art, as evidenced by Mullarkey (column 5, lines 23-65; claims 1-13). Mullarkey teaches a method for processing unused ammunition by heating, wherein the charge of ammunition via conveyer **2** is controlled (i.e. started or stopped) by comparing the quantity of charged ammunition to the peak points of furnace pressure (i.e. acoustic shock sensed by explosion detector **66**). Accordingly, the step provides an additional safety mechanism by preventing an ammunition charge that has not exploded from leaving the furnace. The ammunition, like the inflator, emits combustion gas upon deactivation via heating to an ignition or operating temperature, and would thus represent analogous art.

With respect to the specific materials selected for the inner surface of the furnace and the partition wall (i.e., ceramic and steel, respectively), the same comments with respect to Allerton, III. et al. apply (see claim 1 above). In any event, apparatus limitations, unless they affect the process in a manipulative sense, have little weight in process claims. *In re Tarczy-Hornoch* 158 USPQ 141, 150 (CCPA 1968); *In re Edwards* 128 USPQ 387 (CCPA 1961); *Stalego v. Heymes* 120 USPQ 473, 478 (CCPA 1959); *Ex parte Hart* 117 USPQ 193 (PO BdPatApp 1957); *In re Freeman* 44 USPQ 116 (CCPA 1940); *In re Sweeney* 72 USPQ 501 (CCPA 1947).

Response to Arguments

5. Applicant's arguments filed December 23, 2003 with respect to the rejection of claims 1 and 2 under 35 U.S.C. 103(a) as being unpatentable over Nakasato in view of Allerton, and the rejection of claim 4 under 35 U.S.C. 103(a) as being unpatentable over Nakasato in view of Mullarkey, have been fully considered but they are not persuasive.

On page 4 (third paragraph) and on page 5 (first paragraph), Applicants assert,

> "The Examiner argues that the Nakasato apparatus is "inherently capable [of] judging the timing of charge of the inflators". Applicants respectfully request the Examiner to document this assertion."
>
> "The Examiner argues that it would have bee obvious for one of ordinary skill in the art at the time the invention was made to provide the step of judging in the method of Nakasato et al., since the step is inherent to the method of Nakasato". Applicants respectfully request the Examiner to document this assertion."

In response, please note page 3, lines 36-44, in Nakasato (EP 0 677 336) --

> "If, as is preferred, the heating furnace is used in a continuous mode, inflators are continuously and individually fed to the furnace and are activated one at a time in the sequence in which they are fed to the furnace. Such a continuous system is preferred because it will not cause the massive generation of gases associated with the batch mode of actuation, and is thus a safer procedure. Further, such a continuous mode of operation allows greater control over the furnace operation, i.e. temperature, pressure, residence times." (with emphasis added).

From the above passage, the Examiner maintains that the apparatus and method of Nakasato are inherently capable of judging the timing of charge of the inflators into the furnace, as supported by the disclosed capability of the apparatus and method to *continuously* and *individually* feed inflators to the furnace, in order to activate each inflator *one at a time, in sequence*. Further suggested is a means for controlling the timing of the charges, as supported by the disclosed capability of the apparatus and method to provide *control over the furnace operation*, namely *residence times*.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Altekruse illustrates another prior art means for timing the charge of an explosive waste, such as a pyrotechnic device **C**, into an incinerator **2**, wherein the means comprises a module

(i.e., controllable conveyor **30**) capable of timing the charge of a device **C** by starting or stopping the conveyor **30** depending on whether an ignition was detected on an ultra-violet cell **28** following the charge of the device **C** (FIG.; column 2, line 22 to column 3, line 2).

Ritter further illustrates the conventionality of selecting materials such as ceramic and steel for the construction of heat-treating apparatus. Materials such as HAYNES ALLOY HR160 ™, or a solid ceramic, e.g. silicon carbide, or a ceramic-coated, high-temperature alloy steel, are taught for their ability to withstand temperatures of at least about 1100 degrees C as well as corrosion from gases formed during incineration. (column 10, lines 1-56).

* * *

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Leung whose telephone number is (571) 272-1449. The examiner can normally be reached on 8:30 am - 5:30 pm M-F, every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn A. Caldarola can be reached on (571) 272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jennifer A. Leung
April 13, 2004 JAL

Hien Tran

HIEN TRAN
PRIMARY EXAMINER